

Title (en)
SOLID ELECTROLYTE, AND PREPARATION METHOD THEREFOR AND APPLICATION THEREOF

Title (de)
FESTSTOFFELEKTROLYT, HERSTELLUNGSVERFAHREN DAFÜR UND ANWENDUNG DAVON

Title (fr)
ÉLECTROLYTE SOLIDE, SON PROCÉDÉ DE PRÉPARATION ET SON APPLICATION

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Application
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Abstract (en)
[origin: EP3751638A1] The present invention discloses a solid-state electrolyte and a preparation method and application thereof, the solid-state electrolyte comprises membrane material(s) and electrolyte salt(s), the organic phase of the membrane material(s) comprises a three-dimensionally interconnected interface and has a specific interfacial area greater than or equal to $1 \times 10^{4-2} \text{ cm}^2/\text{cm}^3$, and the electrolyte salt(s) is dissolved in the organic phase. The preparation method of the solid-state electrolyte comprises: spraying the polymeric material solution onto the selected receiving surface using electrostatic spinning technique to form a three-dimensional structure, and optionally, at the same time, spraying the dispersion liquid of the inorganic particles onto the selected receiving surface using electrostatic spraying technique, then treating under pressure to give the membrane material(s), and then dropwise adding or spraying the electrolyte salt(s) solution into the membrane material(s) or immersing the thin film in the electrolyte salt(s) solution. The roomtemperature conductivity of the solid-state electrolyte of the present disclosure is up to over 10^{-3} S/cm , does not depend on the addition of special polymers or fillers, and has the advantages of simple preparation, low cost, and wide source of raw materials, etc..

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• [AD] FU KUN (KELVIN) ET AL: "Flexible, solid-state, ion-conducting membrane with 3D garnet nanofiber networks for lithium batteries", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, vol. 113, no. 26, 28 June 2016 (2016-06-28), US, pages 7094 - 7099, XP055827068, ISSN: 0027-8424, Retrieved from the Internet <URL:https://www.pnas.org/content/pnas/113/26/7094.full.pdf> DOI: 10.1073/pnas.1600422113 & FU KUN (KELVIN) ET AL: "supporting information: Flexible, solid-state, ion-conducting membrane with 3D garnet nanofiber networks for lithium batteries", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, vol. 113, no. 26, 28 June 2016 (2016-06-28), US, pages 7094 - 7099, XP055841765, ISSN: 0027-8424, Retrieved from the Internet <URL:https://www.pnas.org/content/pnas/suppl/2016/06/14/1600422113.DCSupplemental/pnas.201600422SI.pdf> DOI: 10.1073/pnas.1600422113
• See references of WO 2019154438A1

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